

A REPORT ON KDOC
ABLE-TO-RECEIVE CAPABILITY
IN LOS ANGELES

SUMMARY OF RESEARCH

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KDOC recently completed a series of studies to determine the reason for the station's low level of viewing in the Los Angeles area. The geographic area used was the Los Angeles Area of Dominant Influence (ADI). This area (determined by The Arbitron Company) receives most of its television service from the Los Angeles based television stations and consists of the following counties or portions of counties:

<u>County</u>	<u>TV Households</u>
Los Angeles	3,134,800
Orange	809,700
San Bernardino	458,400
Riverside West	287,300
Ventura	212,200
Kern East	29,800
Inyo	7,000
TOTAL	4,939,700

Since this report concentrates primarily on non-cable households, it will exclude Ventura, Kern East and Inyo counties where most viewing is via cable. The following data will therefore be concerned with Los Angeles, Orange, San Bernardino and Riverside (West) counties.

It should be noted that, as in all research using a sample, the results are not an absolute, but an estimate. This is especially important when considering some of the results of the study, i.e., all homes in a particular area unable to receive the station. A result such as this points to an area that should be considered extremely marginal in its reception of KDOC.

Since this report is concerned with those television households able to receive the KDOC signal over the air (as opposed to cable), the following data shows the differences between non-cable and cable homes in the Los Angeles television market.

<u>County</u>	<u>TV Households</u>	Non-Cable	Cable
		<u>TV Households</u>	<u>TV Households</u>
Los Angeles	3,134,800*	1,774,300	1,360,500
Orange	809,700	343,300	466,400
San Bernardino	458,400	189,300	269,100
Riverside West	287,300	142,800	144,500
TOTALS	4,690,200	2,499,700	2,240,500
%		52.2%	47.8%

Ventura	212,700	53,000	159,700
Kern East	29,800	6,000	23,800
Inyo	7,000	900	6,100
<u>TOTALS</u>	249,500	59,900	189,600
%		23.9%	76.1%

The exclusion of the three counties as indicated represents only 5% of the total television homes in the Los Angeles market. Since over 75% of the homes in these counties receive their television reception via cable, they exert little influence in the overall study of KDOC's able-to-receive households.

*The San Fernando Valley, which contains approximately 545,500 homes, representing 17.4% of Los Angeles County (and 11.6% of the four-county area), showed no homes able to receive KDOC over the air.

The KDOC studies were conducted by Arbitron and encompassed the following areas:

1. Reception Surveys

Two studies were completed using household viewing diaries from the May and July 1989 survey periods. The data indicated whether households could or could not receive KDOC. If the diary showed that the household could receive KDOC, it was then checked to see if the household also viewed KDOC during either of the two survey periods.

With the July reception survey, a control factor was added to show a comparison with KDOC and another UHF station in the Los Angeles market. The station chosen was KCET, the Los Angeles based PBS station and the only other UHF station in the market with enough generalized programming appeal to provide a comparison. The results are summarized in a KDOC/KCET section.

2. Picture Quality Surveys

This survey was conducted by telephone using a combination of those households indicating able-to-receive in the May and July surveys. The information provided data on the (1) quality of reception by homes indicating they could receive KDOC and (2) a correlating factor between picture quality and reception.

With this particular portion of the research, Arbitron also prompted each respondent as to the reason why, if KDOC could be received, why it was not viewed. These responses can be found in the Verbatim section of the report.

3. Antenna Survey

This was a supplementary study conducted to determine reception by the type of antenna used. The quality of KDOC reception was cross-tabbed by antenna type and zip code.

SUMMARY OF FINDINGS

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RECEPTION STUDIES

May and July 1989

The reception information for these studies was taken from the same Arbitron viewing diaries used by households to produce the Los Angeles television market reports for the May and July 1989 survey periods. May covered April 26-May 23; July was July 5-August 11. The diaries were reviewed by Arbitron and the results of those in-tab (usable) diaries were tabulated to determine whether the households could receive KDOC and if viewing did occur among those homes that indicated they could receive the station.

The "can receive" data used to compile the data in this report was taken from the space provided on the first page of the Arbitron diary. This area is used by the diary keeper to record all stations which can be received in that household.

It should be noted that in approximately 50% of the diaries, the full and complete "can receive" information is not provided by the diary keeper. In the blank or partially completed diaries, an Arbitron editor checks the day-by-day viewing record of all call letters and channel numbers indicated in the diary and uses this as a source of the stations the home can receive. Once again, this could possibly inhibit the number of homes reporting that they can receive KDOC. If a home does not indicate being able to receive KDOC in the front of the diary and there is no indication of KDOC programming being viewed in the day by day record, KDOC would be considered as unable to receive. In fact, there is a possibility that the home can receive KDOC, but simply did not view. Therefore, KDOC's able-to-receive data may be somewhat understated. However, the number of diaries surveyed between the May and July Arbitron reports indicates that if there is an understatement, it would be relatively small.

Non-Cable Reception/Viewing

This series of research studies showed that KDOC has severe reception limitations among the non-cable homes in the Los Angeles area. Non-cable reception/viewing to KDOC are as follows:

County	Non-Cable		
	<u>Household Diaries</u>	<u>Rec. KDOC</u>	<u>Viewing KDOC</u>
Los Angeles	1,201	229	114
%		19.1%	9.5%
Orange	270	70	24
%		25.9%	8.9%
San Bernardino	121	24	9
%		19.8%	7.4%
Riverside West	99	15	11
%		15.2%	11.1%
Total	1,691	338	158
%		20.0%	9.3%

80% OF THE NON-CABLE HOMES ARE UNABLE TO RECEIVE KDOC.

OF THOSE THAT CAN RECEIVE KDOC, 46.7% VIEW.

ABLE-TO-RECEIVE BY ANTENNA TYPE

KDOC PICTURE QUALITY BY ANTENNA TYPE - Set Used Most Often

Three major antenna groups were reported in the research to provide television reception to non-cable Los Angeles households:

1. Outdoor Roof Antenna

This antenna is the most prevalent type found in the survey (61.2%). Homes can usually point the antenna in the direction that optimize the reception of the stations in which there is the most interest. The inconvenience of antenna adjustment by the household make it, for all practical purposes, fixed. The age and quality of the antenna is also a consideration in reception.

2. Indoor Antenna

Although not providing the reception quality of most outdoor antennas, indoor antennas have the advantage of in-home adjustment. This enables a household to receive a better quality picture from hard-to-receive stations that a pre-aligned outdoor antenna cannot deliver.

3. Common Building Antennas

Usually serving multiple household units (apartments, condominiums, etc.), these antennas usually offer no option of adjustment and must rely on the strength of the station's signal for reception.

For reference, non-cable homes relying on antennas for television reception are divided as follows:

Outdoor (roof)	61.1%
Indoor	19.2%
Common Building	19.7%
TOTAL	100.0%

PICTURE QUALITY BY ANTENNA TYPE

In the charts that follow, KDOC picture quality is measured by antenna type. This comparison leads to certain questions that pertain to KDOC's current able-to-receive status.

1. Given the predominance of outdoor antennas (61.1% of the sample), can KDOC's signal be improved (via transmitter power or broadcast antenna) to deliver a higher excellent to good percentage? Would this result in increased viewing to KDOC?
2. Does the high percentage in the excellent to good picture quality rating for indoor antennas indicate that if homes have an option of ease of antenna adjustment do so to receive KDOC? How much improvement in reception and possibly increased viewing would result if a better signal was generated to enable outdoor antenna homes to receive a picture equaling the quality of indoor antennas?
3. Would an improved KDOC signal increase the picture quality (and possibly the viewing) in common building antenna households?
4. Would an increase in power benefit in-door antenna households so that antenna tuning to receive KDOC not have to be made?

RECEPTION AND VIEWING BY ANTENNA TYPE

The following pages show the relationship between picture quality and viewing for KDOC, KCET (UHF) and KCAL (VHF).

Stations KOCE, KHSC and KSCI (all UHF) were also surveyed and averaged 54.5% in the can't receive/don't know categories. This may be a function more of station awareness by viewers than of actual reception quality. For comparative purposes, the reception of KCET and KCAL better reflect the standards to which KDOC should be held and these stations have been used to show KDOC's relative performance.

The following charts represent a sample that was weighted toward homes that indicated they could receive KDOC. These homes were selected from the May/July able-to-receive studies. The deliberate bias toward KDOC able-to-receive homes was directed in order to obtain a sufficient sample of homes that would reflect KDOC picture quality by antenna type and thus provide an assessment of the performance of each in receiving the KDOC signal.

Outdoor Antenna

<u>Picture Quality</u>	<u>KDOC</u>	<u>KCET</u>	<u>KCAL</u>
Excellent/Good	44.7%	68.0%	88.0%
Fair/Poor	32.0%	20.0%	6.6%
Can't Rec/Don't Know	23.3%	12.0%	5.4%

Indoor Antenna

<u>Picture Quality</u>	<u>KDOC</u>	<u>KCET</u>	<u>KCAL</u>
Excellent/Good	55.4%	65.9%	95.8%
Fair/Poor	23.4%	23.4%	2.1%
Can't Rec/Don't Know	21.2%	10.7%	2.1%

Common Building

<u>Picture Quality</u>	<u>KDOC</u>	<u>KCET</u>	<u>KCAL</u>
Excellent/Good	29.2%	50.0%	75.0%
Fair/Poor	31.3%	27.1%	20.8%
Can't Rec/Don't Know	39.5%*	22.9%	4.2%

*29.2% of the respondents indicating common building antenna usage said they could not receive KDOC.

Note that while KCAL is fairly representative of a strong VHF station in picture quality, KCET, even though the market's most viewed UHF station is considerably below KCAL in the excellent/good category.

Looking at KDOC and KCET, the most significance difference between the two is excellent/good picture quality and the can't receive/don't know categories.

If a comparison is made of excellent/good with the two other categories (fair/poor and can't receive/don't know), KCET's superior reception by households becomes an obvious factor in station viewing. This highlights the current differences between the stations in signal acquisition, antenna type not withstanding.

	<u>Outdoor</u>	
<u>Picture Quality</u>	<u>KDOC</u>	<u>KCET</u>
Excellent/Good	44.7%	68.0%
All other*	55.3%	32.0%

	<u>Indoor</u>	
<u>Picture Quality</u>	<u>KDOC</u>	<u>KCET</u>
Excellent/Good	55.4%	65.9%
All other*	44.6%	34.1%

	<u>Common Building</u>	
<u>Picture Quality</u>	<u>KDOC</u>	<u>KCET</u>
Excellent/Good	29.2%	50.0%
All other*	70.8%	50.0%

In two of three antenna types, KCET delivered an excellent/good picture by a ratio of three to one over the lesser categories. Only in the indoor antenna category did more than 50% of the homes report an excellent/good picture for KDOC.

*Combination of fair/poor and can't receive.

ANALYSIS OF KDOC PICTURE QUALITY BY ANTENNA TYPE

By removing the can't receive/don't know responses from the reception by antenna type, the base becomes those homes able-to-receive only. (The can't receive/don't know data was within two percentage points in both antenna types and would therefore statistically cancel both for comparative purposes.)

1. Recalculated responses with can't receive/don't know removed:

<u>KDOC Picture Quality</u>		
	<u>% Excellent/Good</u>	<u>% Fair/Poor</u>
<u>Outdoor Antenna</u>		
Responses: 115	67	48
%	58.3%	41.7%
<u>Indoor Antenna</u>		
Responses: 37	26	11
%	70.3%	29.7%

(Common building antenna picture quality was nearly evenly divided between the two categories of reception.)

2. Although the number of responses will affect the percentages (the lower the base response number, the more pronounced the percentage), the 70% excellent/good picture quality for indoor antennas vs. 58% for outdoor is significant.
3. The above data tends to support the findings presented earlier in this research that viewers will tune to KDOC if it can be received. This is based on the assumption that the KDOC excellent/good picture quality achieved by homes with indoor antennas is a direct result of in-home adjustment to receive better picture quality.

The following points can be made from the picture quality data:

1. Analyzing the data for KDOC, KCET and KCAL, KDOC's picture quality shows the sharpest differences between antenna types, indicating a varying degree of reception quality throughout the area.
2. The signals of KCET and KCAL show less radical differences in reception between antenna types, indicating a more consistent signal strength.
3. Note that all three stations face the same problem with common building antennas; however, KDOC is significantly below both KCET and KDOC.
4. The picture quality in the excellent to good range increases sharply for both KDOC and KCAL between outdoor and indoor antennas; KCET remained virtually the same.
5. Note once again the fact that, even though this sample was skewed toward homes that indicated they can receive KDOC which artificially raised KDOC's percentages, KCET's overall reception was significantly better.

Overall Reception
(Excellent to Poor)

<u>Antenna Type</u>	<u>Point</u>		
	<u>KDOC</u>	<u>KCET</u>	<u>Difference</u>
Outdoor	76.7%	88.0%	11.3
Indoor	78.8%	89.3%	10.5
Common Building	60.5%	77.1%	16.6

A KDOC/KCET COMPARISON

KDOC/KCET COMPARISON (July Survey only)

In order to place KDOC's able-to-receive data in perspective, a secondary study was commissioned from the July research results. This produced able-to-receive information for Los Angeles UHF station KCET (PBS).

The primary reason for this study was to show the non-cable able-to-receive capability of a UHF station in the Los Angeles market. KDOC data is shown for comparison.

KCET/KDOC Comparison

July Survey Period

Non-Cable Diaries

<u>County</u>	<u>Non-Cable Diaries</u>	<u>KCET Can Receive</u>	<u>KDOC Can Receive</u>
Los Angeles	596	320	122
%		53.7%	20.5%
Orange	136	61	35
%		44.9%	25.7%
San Bernardino	64	27	11
%		42.2%	17.2%
Riverside	53	16	6
%		30.2%	11.3%
TOTALS	849	424	164
%		49.9%	19.3%

THE RESULT OF INCREASED ABLE-TO-RECEIVE
HOUSEHOLDS FOR KDOC

CURRENT ABLE-TO-RECEIVE CAPABILITIES - KDOC/KCET

The following chart is based on diaries tabulated from all counties representing the Los Angeles ADI with homes projected to 1989-90 levels.

<u>Can Receive</u>	<u>KDOC</u>	<u>KCET*</u>
Total Non-Cable/Cable Homes:	864,400 (17.5%)	2,450,100 (49.6%)
Non-Cable**	513,700 (10.4%)	1,249,700 (25.3%)
Cable**	350,700 (7.1%)	1,200,400 (24.3%)

If KDOC's signal were to equal that of KCET's among non-cable homes, KDOC's able-to-receive data would change to the following:

KDOC Able to Receive:

Non-Cable Homes	1,249,700 (+736,000 homes)
Cable Homes	<u>350,700</u> (no change)
TOTAL	1,600,700

This is equal to 32.4% of all Los Angeles television households.

*July survey only.

**Projected from diary returns from all homes in Los Angeles ADI.

THE EFFECT OF INCREASED ABLE-TO-RECEIVE ON THE KDOC VIEWING AUDIENCE

Increasing KDOC's able-to-receive households would logically add to the KDOC viewing audience.

According to the May and July diary analysis used as the basis for the above information, KDOC is viewed by 45.4% of all of its able-to-receive homes. Translating this data to the projected increase in KDOC's able-to-receive households produces the following estimates:

<u>Estimated Increased</u> <u>Able-To-Receive</u>	<u>Current</u> <u>Did View</u>	<u>Able-To-Receive</u> <u>Homes Viewing</u>
1,600,400	45.4%	726,600

This represents an increase of 392,400 new view viewing households over KDOC's current level.

APPENDIX II

ENGINEERING STATEMENT

Bernard R. Segal, P.E.
Consulting Engineer
Washington, DC

ORIGINAL

**ENGINEERING STATEMENT
IN SUPPORT OF A REPLY TO MSTV AND
OTHER BROADCASTERS' EX PARTE SUBMISSION
IN MM DOCKET NUMBER 87-268**

The instant Engineering Statement has been prepared on behalf of Golden Orange Broadcasting Co., Inc. (hereafter, Golden Orange), licensee of Station KDOC-TV, Anaheim, CA. KDOC-TV operates on NTSC channel 56, and has been allotted DTV channel 32 in the FCC's Sixth Report and Order in MM Docket Number 87-268.

The Association for Maximum Service Television, Inc. and other broadcasters (hereafter MSTV/Broadcasters) have proposed as part of an "Ex Parte Submission Based on New Technical Discoveries to Help the Commission Improve the DTV Table of Allotments/Assignments," the allotment of DTV channel 55 for KDOC-TV. The MSTV/Broadcasters document proposes certain allotment changes in three difficult high-density television station areas in the country. The instant Engineering Statement addresses only the aspect of important interest to Golden Orange, i.e., the California coastal region with particular emphasis on the allotments for Los Angeles as they impact on the aspirations of Golden Orange for KDOC-TV DTV operation.

Bernard R. Segal, P.E.
Consulting Engineer
Washington, DC

Engineering Statement
Station KDOC-TV, Anaheim, CA

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Anaheim, KDOC-TV's city of license, is located in the Los Angeles basin and is part of the Los Angeles urbanized area. All the stations licensed to Los Angeles are located at Mount Wilson. Golden Orange has long desired to operate KDOC-TV from Mount Wilson, also, not only to compete effectively with the Los Angeles based stations, but to better serve Anaheim, as well. Golden Orange has been impeded from locating KDOC-TV at Mount Wilson because of the current NTSC taboos. Specifically, the channel 56 operation must exceed 32.2 kilometers from station KLCS, channel 58, which is located at Mount Wilson. KDOC-TV's current site at Sunset Ridge, at a distance of approximately 34 kilometers from KLCS, satisfies the 32.2 kilometer minimum separation restriction.

The advent of DTV and the adoption of new criteria for its implementation afford an opportunity for the relocation of KDOC-TV to Mount Wilson, but in order to achieve that objective, it is important that the DTV channel allotment not be first adjacent to the NTSC channel 56 allotment. The current allotment of channel 32 for KDOC-TV DTV use would permit a move to Mount Wilson. As stated earlier, the channel 56 KDOC-TV site is at Sunset Ridge. The simultaneous operation of a DTV facility on first adjacent channel